Preliminary - For Review Only

FY-06

ITEM NO: 009-56
DATE: 30 AUG 2002
CATEGORY: II

1. SCOPE:

    1.1 Title: Boiler Wet Lay-Up; accomplish

2. REFERENCES:

    2.1 S9086-GX-STM-020/CH-220, Volume 2, Boiler Water/Feedwater Test and Treatment

3. REQUIREMENTS:

    3.1 Accomplish hydrazine/morpholine wet lay-up of each boiler.

        3.1.1 Accomplish the safety and handling of hydrazine in accordance with Paragraph 220-22.71 of 2.1.

    3.2 Notify the SUPERVISOR 24 hours prior to lay-up of each boiler.

    3.3 Provide the volume of water required to fill the boiler, superheater, economizer, and associated piping by consulting Table 220-22-11 of 2.1. Include an additional 500 gallons for reserve in the total amount required in Table 220-22-11 of 2.1. Water used for lay-up shall conform to the following requirements:

CONSTITUENT or PROPERTY   REQUIREMENT

        SHORE STEAM AND CONDENSED SHORE STEAM USED AS FEEDWATER

CONSTITUENT or PROPERTY	REQUIREMENT
pH	8.0 to 9.5
Conductivity	25 micromho/cm max
Dissolved Silica	0.2 ppm max
Hardness	0.10 epm max
Total Suspended Solids	0.10 ppm max

        SHORE PROCESSED FEEDWATER (DEMINERALIZERS, REVERSE OSMOSIS)

CONSTITUENT or PROPERTY	REQUIREMENT
Conductivity	2.5 micromho/cm max (at point of delivery)
Silica	0.2 ppm max

3.3.1 Submit one legible copy, in hard copy or electronic media, of chemical analysis to the SUPERVISOR.

3.3.2 The use of filming amines to control steam/steam condensate pH is prohibited.

3.3.3 Provide a pierside tank that will hold the quantity of feedwater required. The tank shall be used to mix the hydrazine/morpholine solution.

3.3.4 For each 1,000 gallons of water added to the tank, 2,500 milliliters (2/3 gallon) of catalyzed 15-percent hydrazine and 375 milliliters (4/5 pint) of 40-percent morpholine shall be used.

3.3.4.1 Transfer the required amount of hydrazine into narrow mouthed one-gallon or two-gallon polyethylene bottles with polyethylene or polypropylene screw closures.

3.3.4.2 Transfer the required amount of morpholine to a narrow mouthed pint, quart, or gallon polyethylene bottle as appropriate to the volume needed. Pour the morpholine and hydrazine into the tank.

3.3.4.3 Immediately fill the tank with feedwater to the level calculated in 3.3 for the quantity of hydrazine solution desired.

3.3.5 Remove water from the boiler, superheater, and economizer. Close boiler drains and openings with the exception of steam drum, superheater, and economizer vents.

3.3.6 Immediately fill the boiler, including superheater and economizer, taking suction from the hydrazine/morpholine-treated tank.

3.3.6.1 While filling the boiler, close each vent in turn as the treated water overflows. After the boiler is filled as shown by an overflow from the highest vent, crack each lower vent in turn to ensure that there are no trapped air pockets.

3.4 Maintain positive pressure on the boiler, not to exceed 150 PSIG, using a head tank, nitrogen, or shore steam.

3.5 Determine the hydrazine concentration on the day the boiler is placed under lay-up and weekly thereafter.

3.5.1 Draw a sample through the boiler water sample line after allowing the boiler water to flow for five minutes to flush the line. Allow the sample bottle to overflow before capping the bottle to eliminate trapped air.

3.5.1.1 Determine the hydrazine concentration as soon as possible, but within one hour after sampling.

3.5.1.2 The hydrazine concentration will normally be between 30 and 70 ppm. If the hydrazine content falls below 2.5 ppm, the lay-up is lost and the boiler shall be dumped and treated again.

3.5.2 Submit one legible copy, in hard copy or electronic media, of a report to the SUPERVISOR of the hydrazine concentration on the day the lay-up commences and weekly thereafter.

3.6 Drain the superheater and bring the boilers to operating level. Dispose of removed solution in accordance with local, state, and federal regulations.

3.6.1 Do not drain the solution to the bilge.

4. NOTES:

4.1 None.